

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P#

Luminaire Tested: **FLDSQ4C15D010 FEU4C159030 F4LC-CSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P#
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C15D010 FEU4C159030 F4LC-CSSQ-MW
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

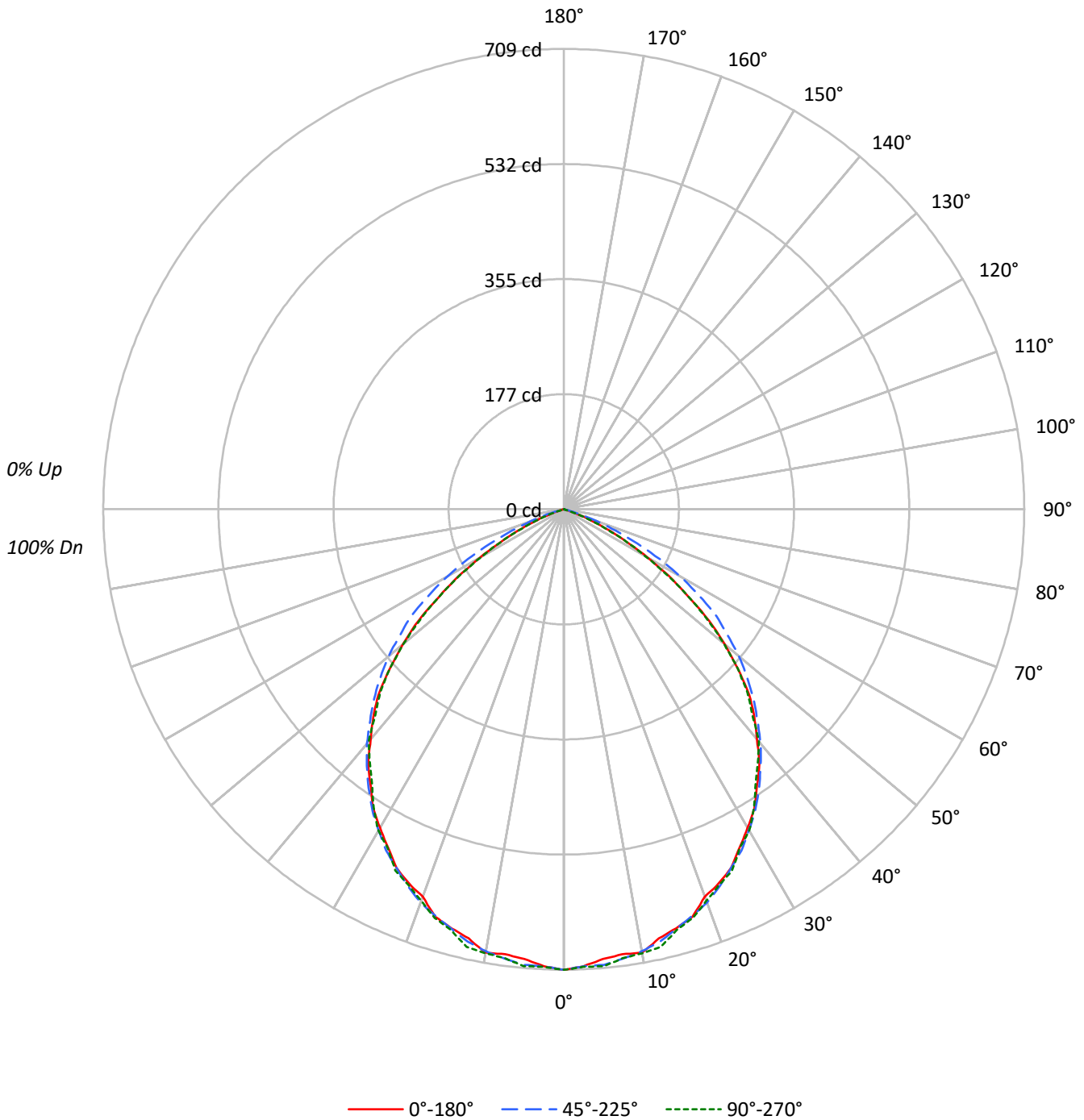
Lumens per Lamp: N/A
 Luminaire Lumens: 1515.0 lumens
 Efficiency: N/A
 Efficacy: 95.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 15.8
 Input Voltage (V):
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20			
RC	80				70				50				30				10	0		
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	68430	68430	68430
5°	67326	68207	68401
10°	67908	67712	68006
15°	66718	66818	67018
20°	65172	66199	65891
25°	64890	64890	65315
30°	63072	63529	63641
35°	61110	61699	60639
40°	58243	59376	58872
45°	55128	56356	54569
50°	48546	52779	48245
55°	39314	48297	39482
60°	28773	40043	28194
65°	17489	28516	17032
70°	6827	15347	6545
75°	746	4138	746
80°	556	556	556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	66.9	4.4
10°-20°	189.4	12.5
20°-30°	281.1	18.6
30°-40°	325.7	21.5
40°-50°	312.3	20.6
50°-60°	229.6	15.2
60°-70°	99.2	6.5
70°-80°	10.7	0.7
80°-90°	0.1	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	537.5	35.5
0°-40°	863.1	57.0
0°-60°	1405.0	92.7
0°-90°	1515.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1515.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	709	709	709	709	709	
5°	695	702	704	705	706	66
15°	668	672	669	670	671	188
25°	610	608	610	610	614	279
35°	519	522	524	523	515	324
45°	404	405	413	407	400	307
55°	234	258	287	257	235	210
65°	77	96	125	95	75	79
75°	2	3	11	2	2	6
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	709.2	709.2	709.2	709.2	709.2	709.2	709.2	709.2	709.2	709.2	709.2
2.5°	704.2	712.2	713.2	708.2	706.2	703.2	710.2	705.2	707.2	705.2	704.2
5°	695.1	704.2	705.2	705.2	703.2	702.1	705.2	704.2	703.2	701.2	704.2
7.5°	691.1	696.1	701.2	695.1	698.1	697.1	704.2	701.2	700.1	700.1	698.1
10°	693.1	692.1	696.1	690.1	692.1	690.1	696.1	696.1	694.1	692.1	691.1
12.5°	677.0	685.0	685.0	684.0	682.0	679.0	685.0	689.1	683.0	683.0	682.0
15°	667.9	669.9	670.9	670.9	669.9	671.9	674.9	670.9	671.9	666.9	668.9
17.5°	657.8	653.8	656.8	654.8	655.8	657.8	661.9	661.9	655.8	654.8	656.8
20°	634.7	646.7	647.8	641.7	642.7	642.7	649.8	643.7	647.8	642.7	644.7
22.5°	623.6	631.6	632.6	624.6	629.6	623.6	630.6	621.5	631.6	624.6	627.6
25°	609.5	608.5	611.5	607.5	608.5	608.5	613.5	609.5	612.5	608.5	609.5
27.5°	586.3	594.4	593.4	589.3	591.3	590.4	600.4	589.3	595.4	590.4	592.4
30°	566.1	573.2	571.2	567.2	567.2	564.1	575.2	572.2	571.2	571.2	570.2
32.5°	546.0	547.0	545.0	546.0	547.0	543.0	552.0	548.0	547.0	548.0	549.0
35°	518.8	518.8	520.8	517.8	521.8	521.8	529.9	524.8	523.8	520.8	523.8
37.5°	494.6	491.6	492.6	492.6	494.6	496.6	500.7	498.7	498.7	495.7	497.7
40°	462.4	460.4	463.4	463.4	466.4	466.4	470.5	468.4	471.4	471.4	471.4
42.5°	434.2	434.2	432.2	435.2	436.2	435.2	442.3	441.2	442.3	440.2	441.2
45°	404.0	404.0	401.9	401.0	406.0	405.0	413.0	410.0	414.0	412.0	413.0
47.5°	362.6	367.7	364.7	367.7	373.7	374.8	379.8	377.8	381.8	378.8	382.8
50°	323.4	323.4	326.4	330.4	336.5	337.5	343.5	347.6	349.6	350.6	351.6
52.5°	282.1	281.1	284.1	289.1	294.2	298.2	304.2	310.3	314.3	320.4	317.3
55°	233.7	235.7	238.8	244.8	252.9	257.9	262.9	271.0	278.1	281.1	287.1
57.5°	192.4	190.4	192.4	200.5	209.5	213.6	220.6	228.7	238.8	244.8	246.8
60°	149.1	150.1	152.1	159.2	166.2	172.3	175.3	188.4	197.5	203.5	207.5
62.5°	109.8	111.8	113.9	119.9	126.9	132.0	137.0	148.1	156.1	162.2	166.2
65°	76.6	77.6	80.6	83.6	90.7	95.7	99.7	108.8	116.9	121.9	124.9
67.5°	47.3	48.3	50.4	54.4	59.4	63.5	67.5	73.5	80.6	85.6	86.6
70°	24.2	25.2	26.2	29.2	33.3	35.3	38.3	43.3	48.3	52.4	54.4
72.5°	8.1	8.1	9.1	11.1	13.1	15.1	16.1	21.2	25.2	27.2	28.2
75°	2.0	2.0	2.0	2.0	2.0	3.0	3.0	6.0	8.1	10.1	11.1
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	709.2	709.2	709.2	709.2	709.2	709.2	709.2	709.2	709.2	709.2
2.5°	709.2	707.2	706.2	707.2	707.2	706.2	709.2	713.2	718.3	705.2
5°	708.2	706.2	708.2	702.1	705.2	703.2	707.2	706.2	710.2	706.2
7.5°	705.2	701.2	702.1	699.1	703.2	698.1	701.2	707.2	703.2	697.1
10°	695.1	693.1	700.1	690.1	688.1	692.1	700.1	694.1	692.1	694.1
12.5°	685.0	685.0	688.1	680.0	681.0	683.0	687.0	683.0	685.0	690.1
15°	674.0	671.9	677.0	670.9	669.9	667.9	671.9	671.9	674.0	670.9
17.5°	660.8	657.8	657.8	655.8	654.8	659.9	661.9	662.9	663.9	659.9
20°	644.7	643.7	646.7	643.7	644.7	645.8	645.8	643.7	652.8	641.7
22.5°	627.6	630.6	626.6	624.6	626.6	628.6	628.6	629.6	627.6	625.6
25°	610.5	612.5	613.5	607.5	610.5	607.5	614.5	615.5	611.5	613.5
27.5°	595.4	592.4	591.3	587.3	589.3	588.3	589.3	589.3	595.4	587.3
30°	572.2	569.2	570.2	567.2	568.2	567.2	568.2	568.2	572.2	571.2
32.5°	550.0	547.0	548.0	545.0	545.0	546.0	544.0	544.0	547.0	545.0
35°	528.9	521.8	522.8	521.8	522.8	518.8	518.8	517.8	519.8	514.8
37.5°	498.7	495.7	494.6	493.6	494.6	492.6	494.6	491.6	494.6	490.6
40°	471.4	469.4	470.5	464.4	464.4	465.4	463.4	462.4	463.4	467.4
42.5°	444.3	440.2	438.2	436.2	437.2	434.2	433.2	431.2	433.2	429.1
45°	412.0	412.0	411.0	406.0	407.0	407.0	403.0	398.9	399.9	399.9
47.5°	382.8	380.8	379.8	374.8	373.7	372.8	368.7	365.7	365.7	362.6
50°	350.6	348.5	345.5	340.5	338.5	332.4	329.4	325.4	321.4	321.4
52.5°	320.4	313.3	309.3	301.2	298.2	295.2	287.1	284.1	281.1	278.1
55°	284.1	278.1	270.0	260.9	256.9	251.8	243.8	237.7	233.7	234.7
57.5°	248.8	238.8	230.7	218.6	213.6	210.5	202.5	194.4	190.4	190.4
60°	205.5	197.5	187.4	176.3	172.3	167.2	157.1	152.1	149.1	146.1
62.5°	164.2	158.2	149.1	135.0	132.0	126.9	119.9	113.9	110.8	110.8
65°	122.9	116.9	108.8	98.7	94.7	90.7	84.6	78.6	75.5	74.6
67.5°	86.6	79.6	72.5	64.5	61.4	59.4	53.4	49.4	47.3	46.3
70°	52.4	48.3	43.3	37.3	34.2	32.2	28.2	25.2	24.2	23.2
72.5°	27.2	24.2	20.1	16.1	14.1	12.1	10.1	8.1	7.1	7.1
75°	10.1	8.1	5.1	3.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)